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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,944	03/24/2004	Francesco de Rege Thesauro	100209	5134
29050	7590	06/26/2006		
STEVEN WESEMAN ASSOCIATE GENERAL COUNSEL, I.P. CABOT MICROELECTRONICS CORPORATION 870 NORTH COMMONS DRIVE AURORA, IL 60504				EXAMINER GEORGE, PATRICIA ANN
				ART UNIT 1765
				PAPER NUMBER DATE MAILED: 06/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/807,944	DE REGE THESAURO ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Patricia A. George	1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 30 March 2006.
- 2a) This action is **FINAL**.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                            |                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                       | Paper No(s)/Mail Date. _____ .                                              |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/14/06</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|                                                                                                                                            | 6) <input type="checkbox"/> Other: _____                                    |

***Response to Amendment***

The amendment filed on 3/30/06 has been considered but is ineffective to overcome the references provided in the office action date 2/13/06. Response to arguments is offered below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Small et al. of US 2003/0162398 in view of Sethuraman et al. of USPN 5,972,124.

Small teaches an aqueous composition for chemical-mechanical polish (ab.).

As for applicants' limitation abrasives types, Small teaches a broad selection of types, such as alumina, fumed alumina, and titania [para.24], as in claims 4, 10, and 11, and also use of any typical abrasive [para.11], which includes every types of abrasive cited in applicants' claims 1, 4, 10, and 11. (Evidenced of typical types of particles used for grinding and polishing is provided: Table 1.3 Mechanical Properties of Ceramics,

Handbook of Ceramic Grinding and Polishing Edited by: Marinescu, Ioan D.; Tonshoff, Hans K.; Inasaki, Ichiro © 2000 William Andrew Publishing/Noyes).

As for applicants' limitation ion of metal, Small teaches the use metal ions [para. 31] as a catalyst, but that these catalysts may be in a variety of forms such as nitride and chlorides which are soluable (i.e. provide ions) (see Small's reference at para 0031, then evidenced by <http://chemistry.about.com/library/weekly/blsolubility.htm>; Solubility Rules); abrasive particles [para.10]; and that they may be used in quantities up to 50 wt% of the composition [para. 27], which encompasses the quantities limitations of claims 1, 5, 6, 7, 10, 12, 13, and 14. Small teaches the metal abrasive particles are catalysts which favorably interact to generate free radicals effective in targeting the material on the substrate surface, facilitating or accelerating the removal at the site of the targeted material [para.12]. Small teaches the abrasive particles are of any metal group other than those from groups 4(b), 5(b), and 6(b) of the periodic table of elements [para.10], which encompasses the claimed types listed in claim 1 and 10.

Small teaches the slurry comprises water [para.41], as in claims 1 and 10, and that it has a pH of about 2 to 11, which overlaps and encompasses the pH limitations of claims 8, 9, 15 and 16.

It is noted that Small fails to use the units of mmol/kg of ions as defined in applicants' claims 1, 2, 3, and 10. However, it appears as if the disclosed amounts of metal would overlap applicants' claimed mmol/kg upon unit conversion.

It would have been obvious to one of ordinary skill in the art at the time of invention was made, to convert the weight percentage into, as taught by Small, into

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molarity, if the density of the composition is known. Further the density of the composition can be easily measured.

Small is silent as to the type of alpha particles being alpha alumina, as in claim 1 and 10. Sethuraman et al. teaches it is conventional to use alpha alumina particles as claimed (see abstract), when forming a CMP polishing compositions.

It would have been obvious to one of ordinary skill in the art at the time of invention was made, to select alpha alumina particles as the type of alumina in Small's slurry, because Sethuraman illustrates alpha alumina is effective for CMP polishing compositions.

#### ***Response to Arguments***

Applicant's arguments filed 3/30/06 have been fully considered but they are not persuasive.

Examiner respectfully disagree with applicants' argument on page 2, that Small teaches away both: from a soluble metal ion (1) and types of metals of applicants' limitations (2).

The reference of Small teaches (2) use of metal abrasive particles from any metal group other than those from groups 4(b), 5(b), and 6(b) of the periodic table of elements [para.10] (which encompasses applicants' limitations of claim 1 and 10); and (1) that these particles used as catalysts may be in a variety of forms such as nitride and chlorides which are known to be soluable (i.e. provide ions) (see Small's reference

at para 0031, then evidenced by

<http://chemistry.about.com/library/weekly/blsolubility.htm>; Solubility Rules) in quantities up to 50 wt% of the composition [para. 27], which encompasses the quantities limitations of claims 1, 5, 6, 7, 10, 12, 13, and 14. Small also teaches these metal abrasive particles are catalysts which favorably interact to generate free radicals (i.e. ions from soluble metals) which are effective in targeting the material on the substrate surface, facilitating or accelerating the removal at the site of the targeted material [para.12].

As to applicants argument, on page 3, that challenges the motivation to combine the references of Small and Sethuraman, please see the rejection above. Examiner believes Sethuraman clearly illustrates use of alpha alumina (a well known type of alpha particles) is effective for CMP polishing compositions, which is a proper reason for motivation to combine the two references. One of ordinary skill would be motivated to use any known/available abrasive, such as the alpha alumina disclosed by Sethuraman. Applicants have not shown anything unexpected by selecting a conventional alpha alumina, as the alpha compound of Small.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia A. George whose telephone number is (571)272-5955. The examiner can normally be reached on weekdays between 7:00am and 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571)272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



PAG  
06/07/06

Patricia A George  
Examiner  
Art Unit 1765

NADINE G. NORTON  
SUPERVISORY PATENT EXAMINER

